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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,946	02/28/2002	Ray L. Pickup	10012968 -1	7672

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
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Fort Collins, CO 80527-2400

EXAMINER

LIANG, LEONARD S

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 10/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/086,946

Applicant(s)

PICKUP, RAY L.

Examiner

Leonard S Liang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 14-23, 29-38 and 40-59 is/are pending in the application.
- 4a) Of the above claim(s) 47, 48, 55 and 56 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 14-23, 29-38, 40-46, 49-54 and 57-59 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

New claims 47-48 and 55-56 are removed from consideration because they do not seem to belong to the previously elected species directed to figure 4.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 57-58 are rejected under 35 U.S.C. 102(b) as being anticipated by Richtsmeier et al (US Pat 5428384).

Richtsmeier et al discloses:

- {claim 57} A printing mechanism (figure 1); a printhead configured to deposit fluid printing material upon a printing surface (figure 1, reference 52); a controller configured to generate control signals directing the operation of the printing mechanism (figure 1, reference 110; column 6, lines 32-58); a pressurized air source creating an airflow configured such that the airflow is heated by heat emitted from the controller, wherein the pressurized air source is configured to direct the heated airflow against the print surface (figure 1, reference 72, 90; column 6, lines 32-58)

- {claim 58} A printing mechanism (figure 1); a printhead configured to deposit a fluid printing material on a print surface (figure 1, reference 52); a pressurized air source having at least one vent opening proximate the print surface, wherein the pressurized air source is configured to create a first airflow having a first magnitude at a first region of the print surface and a second airflow having a second distinct magnitude at a second distinct region of the print surface (figure 1, reference 90 (see air flow arrows))

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

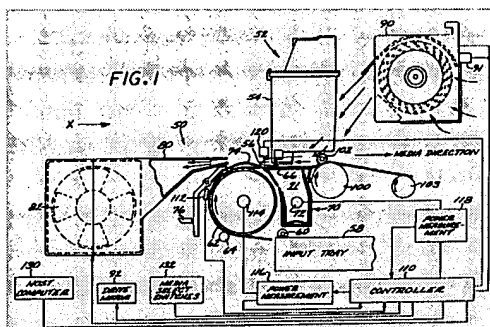
Claims 1, 2-6, 7-10, 14-20, 21-23, 29, 30-32, 33-38, 40-46, 49-54, and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richtsmeier et al (US Pat 5428384) in view of Smith (US Pat 5020244).

Richtsmeier et al discloses:

- {claim 1} A method of operating an inkjet printing mechanism (figure 1; abstract); passing media through a printzone, the printzone including a support

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apparatus supporting the media thereat (figure 1; reference 56, 100, MEDIA DIRECTION); during the passing, applying in a printzone print imaging by application of ink from an ink dispensing element and onto a first surface of the media (figure 1, reference 52; abstract); directing an airflow at the first surface (figure 1, reference 90), the airflow including a first directional component away from the printzone and a second directional component into the first surface, the second directional component urging at least a portion of the media against the support apparatus in the printzone (figure 1, reference 90; abstract; airflow from blower 90 can be divided into first and second components; first directional component is directed both towards and away from printzone as the airflow moves from the crossflow fan to the evacuation fan)



- {claim 5} the airflow carries heat energy taken from a heat source (figure 1; abstract)
- {claim 6} resistive elements carrying electrical current therethrough and having resistance thereto sufficient to produce elevated temperature in the airflow as the heat energy carried by the airflow moving therepast (figure 1, reference 72; column 7, line 65-column 8, line 36; inherent to bulb 72 as it is turned on and off)

- {claim 14} the second directional component is of sufficient magnitude to maintain the media against the support surface in the printzone (figure 1)
- {claim 15} the second directional component is directed away from the printzone (figure 1; abstract)
- {claim 16} the first directional component is substantially uniform across the media in a direction generally transverse to a feed direction of the media passing through the printzone (figure 1)
- {claim 17} the second directional component has greater magnitude at a laterally-outermost portion of the media relative to a laterally-central portion of the media (figure 1)
- {claim 18} the first directional component varies across the media in a direction generally transverse to a direction of the media passing through the printzone (figure 1)
- {claim 19} An ink assist air knife (figure 1, reference 90); a heat source (figure 1, reference 72), the heat source including an inlet and an outlet, the heat source introducing heat energy into an airflow moving therethrough from the inlet to the outlet (figure 1, reference 72, 90; air is heated as it passes from crossflow fan to evacuation fan); an air transport fluidly coupled to the heat source and moving the airflow therethrough (figure 1, reference 72, 90); and a conduit fluidly coupled to the air transport whereby the airflow as provided by the air transport passes through the conduit and exits a vent of the ink assist air knife as a heated airflow, with the vent being located relative to an inkjet printing mechanism having a

printzone, the airflow as provided at the vent including directional components away from the printzone and sufficiently into media for stabilization thereof within the printzone, the media having print imaging thereon as applied by the inkjet printing mechanism within the printzone (figure 1, reference 90, 82; abstract; airflow from crossflow fan can be broken into horizontal first and second components)

- {claim 20} the heat source comprises electrically conductive elements offering resistance to electrical current passing therethrough (figure 1, reference 72; column 7, line 65-column 8, line 36; inherent to bulb 72 as it is turned on and off)
- {claim 22} An inkjet printing mechanism (figure 1); a printing system, including an ink dispensing element selectively ejecting ink droplets to produce imaging in a printzone thereof (figure 1, reference 52, 56), the printing system further comprising a support apparatus partially bounding the printzone to support media therein relative to the ink dispensing element (figure 1, reference 100); and an ink drying system including a heat source, an air transport, and an outlet vent, the air transport providing an airflow through the heat source, at the vent, and against the media with directional components at the outlet vent including a first component directed away from the printzone and a second component directed sufficiently into the media for stabilization thereof within the printzone (figure 1, reference 90; airflow from crossflow fan can be divided into first and second components; abstract)

- {claim 23} the airflow promotes drying of the print imaging and maintains the media within a selected range of distance relative to the ink dispensing element by maintaining the media against the support apparatus (figure 1; abstract)
- {claim 29} the heat source comprises electric components offering resistance to electrical current passing therethrough (figure 1, reference 72; column 7, line 65-column 8, line 36; inherent to bulb 72 as it is turned on and off)
- {claim 31} An ink assist air knife (figure 1, reference 90); heat energy supplying means for generating heat energy (figure 1, reference 72); airflow producing means for producing an airflow (figure 1, reference 90), including means for collecting heat energy from the heat energy supplying means for incorporation into the airflow (figure 1, reference 90, 72), and airflow directing means for applying the airflow to print imaging with directional components of substantial magnitude into the print imaging so as to be sufficient to stabilize media within a printzone whereat the print imaging is produced and bearing the print imaging and with directional components away from the printzone whereat and print imaging is produced (figure 1, reference 90; airflow can be divided into horizontal and vertical components; abstract)
- {claim 32} the heat energy supplying means comprises electric component means for offering resistance to electrical current passing therethrough (figure 1, reference 72; column 7, line 65-column 8, line 36; inherent to bulb 72 as it is turned on and off)

- {claim 35} An inkjet printing mechanism; print imaging applying means for producing print imaging on media in a printzone; and airflow directing means for directing the airflow into the print imaging including airflow directional components away from the printzone and sufficiently into the media to stabilize the media in the printzone (figure 1; abstract)
- {claim 36} the inkjet printer further comprises means for incorporating heat energy into the airflow (figure 1; abstract)
- {claim 37} the airflow directing means includes an air knife vent (figure 1, reference 90)
- {claim 38} the air knife vent is stationary (figure 1, reference 90)
- {claim 40} An inkjet printing mechanism (figure 1); a print imaging device producing print imaging on media in a printzone (figure 1, reference 52); and an airflow directing device applying an airflow to the media including first directional components away from the printzone and second directional components sufficiently toward the media to bear the media against a support apparatus of the printzone and thereby stabilize the media within the printzone (figure 1, reference 90; airflow can be divided into first and second components; abstract)
- {claim 43} wherein the media is passed through the printzone in a first direction and wherein the first directional component is in the first direction (figure 1, reference 90)

- {claim 44} wherein the airflow is directed through a conduit extending towards the first surface and terminating at a vent proximate to and angularly facing the first surface (figure 1, reference 90; internal portion can be viewed as conduit)
- {claim 45} wherein the ink dispensing element is provided by a printhead at a first end of a cartridge having a second opposite end, wherein the conduit extends from the first end to the second end (figure 1, reference 90; in order to dry entire sheet)
- {claim 46} varying a magnitude of the airflow across the first surface (figure 1, reference 90)
- {claim 49} A printing mechanism (figure 1); a printhead configured to selectively eject fluid printing material onto a print surface in a printzone (figure 1, reference 52); a pressurized air source having an opening proximate the print surface and angularly facing away from the printzone so as to direct pressurized air against the print surface to stabilize the print surface within the printzone
- {claim 51} wherein the print surface is passed through the printzone in a first direction and wherein the opening angularly faces in the first direction (figure 1, reference 90)
- {claim 52} wherein pressurized air is directed through a conduit extending towards the print surface and terminating at the opening (figure 1, reference 90 (internal portion can be viewed as conduit))

- {claim 53} a cartridge providing the printhead at a first end having a second opposite end, wherein the conduit extends from the first end to the second end (figure 1, reference 90; in order to dry entire sheet)
- {claim 54} varying a magnitude of the airflow across the print surface
- {claim 59} A printing mechanism (figure 1); a printhead configured to deposit fluid printing material on a printing surface in a printzone (figure 1, reference 52); a support apparatus supporting the printing surface (figure 1, reference 62); a pressurized air source configured to direct an airflow at the print surface such that the print surface is stabilized against the support apparatus in the printzone

Richtsmeier et al differs from the claimed invention in that it does not disclose:

- {claims 1, 19, 22, 31, and 35, and 40} the airflow with directional component away from the printzone so as to not intersect the printzone
- {claim 2} the airflow is directed from an elongate vent
- {claim 3} a length dimension of the elongate vent is generally transverse to a media feed direction of the media passing through the printzone
- {claim 4} the length dimension of the elongate vent is substantially coincident with a width of the printzone
- {claim 8} the airflow is provided from an elongate vent having a length dimension less than a width of the printzone
- {claim 9} the airflow carries heat energy taken from a heat source otherwise producing waste heat energy

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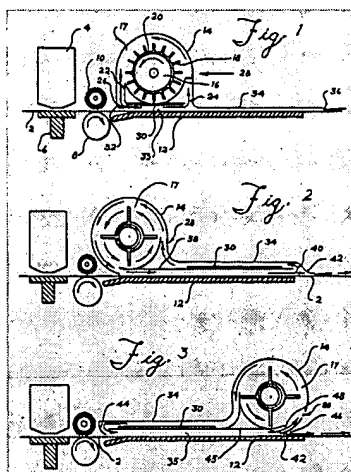
- {claim 10} the waste heat energy originates from electronic control circuit components
- {claim 34} the airflow directing means include a vent located in an inkjet printing mechanism having a printzone, the airflow being provided at the vent, the printzone defining a location at which the print imaging is formed
- {claim 41} the airflow directing device is an air knife having an elongate slot located proximate the media and proximate the printzone whereby the second directional components maintain the media against the support surface when in the printzone
- {claim 42} the airflow is directed from a vent having an opening between the ink dispensing element and the first surface of the media
- {claim 49} such that pressurized air does not intersect the printzone
- {claim 50} the airflow is directed from a vent having an opening between the printhead and the print surface
- {claim 59} the airflow does not create air turbulence at the print surface in the printzone

Smith discloses:

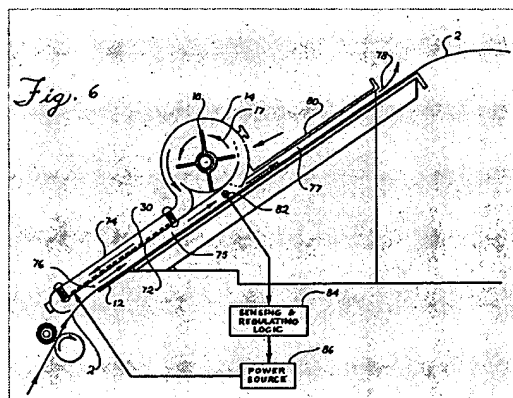
- {claims 1, 19, 22, 31, and 35, and 40} the airflow with directional component away from the printzone so as to not intersect the printzone (figures 1-2; because the airflow producing device lies downstream from the printhead, the airflow does not intersect the printzone

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- {claim 2} the airflow is directed from an elongate vent (figure 1, reference 22, 26)



- {claim 3} a length dimension of the elongate vent is generally transverse to a media feed direction of the media passing through the printzone (figure 1-3, reference 22, 26)
- {claim 4} the length dimension of the elongate vent is substantially coincident with a width of the printzone (figure 1-3, reference 22, 26)
- {claim 8} the airflow is provided from an elongate vent having a length dimension less than a width of the printzone (figure 1, reference 32)
- {claim 9} the airflow carries heat energy taken from a heat source otherwise producing waste heat energy (abstract)
- {claim 10} the waste heat energy originates from electronic control circuit components (figure 6, reference 86; column 5, lines 53-63; claim naturally suggested)



- {claim 34} the airflow directing means include a vent located in an inkjet printing mechanism having a printzone, the airflow being provided at the vent, the printzone defining a location at which the print imaging is formed (figure 1, reference 22, 26)
- {claim 41} the airflow directing device is an air knife having an elongate slot located proximate the media and proximate the printzone whereby the second directional components maintain the media against the support surface when in the printzone (figure 1, reference 22, 26; claim naturally suggested)
- {claim 49} such that pressurized air does not intersect the printzone (as taught in claim 1)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Smith into the invention of Richtsmeier et al, so that the air blowing means of Richtsmeier et al is located downstream from the printhead. The motivation for the skilled artisan in doing so is to gain the benefit of providing an enhanced drying apparatus and method which optimizes air velocity relative to a medium surface,

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temperature of the blown air, and the relative humidity of the blown air (column 1, lines 41-45).

The combination naturally suggests:

- {claim 42} the airflow is directed from a vent having an opening between the ink dispensing element and the first surface of the media
- {claim 50} the airflow is directed from a vent having an opening between the printhead and the print surface
- {claim 59} the airflow does not create air turbulence at the print surface in the printzone

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Richtsmeier et al (US Pat 5428384) in view of Smith (US Pat 5020244), as applied to claim 9 above, and further in view of Meyers et al (US Pat 6463674).

Richtsmeier, as modified, teaches all limitations of the claimed invention except for the following:

- {claim 11} wherein the waste heat energy originates from motor components

Meyers et al discloses a motor heating air (column 7, line 65-column 8, line 8).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Meyers et al into the invention of modified Richtsmeier et al. The motivation for the skilled artisan in doing so is to gain the benefit of gaining a means of heating at higher temperatures (column 8, lines 4-5)

Response to Arguments

Applicant's arguments with respect to claims 1-11, 14-23, 29-38, and 40-59 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ito (JP Pat 54156536A) discloses an ink jet printer.

Unosawa (JP Pat 02235749A) discloses an ink jet recording apparatus.

Peter (US Pat 6283590) discloses a liquid ink printer including a non-scorching dryer assembly.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

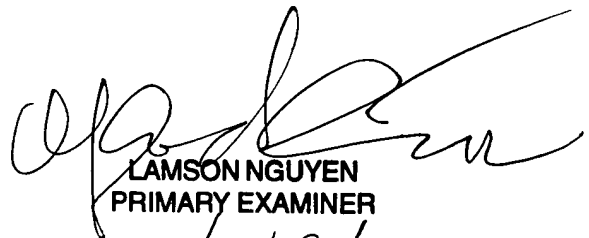
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard S Liang whose telephone number is (571) 272-2148. The examiner can normally be reached on 8:30-5 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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LAMSON NGUYEN
PRIMARY EXAMINER
10/18/04